New Hampshire Energy Code Application for Certification of Compliance

Addition – Sunroom Addition – Renovation Data page

A. Owner/Owner Builder: (Company Name if applicable)			**B. General Contractor** (Company Name)		
Name:			Name:		
Mail Address:			Mail Address:		
City:	State:	Zip:	City:	State:	Zip:
Phone: E-Mail:			Phone: E-Mail:		

C. Proposed Structure: **Map** **Lot**	**D. Official Use Only:** **Date Rec'd:**
Street:	**Approved by:** **Date:**
City:	**Approval Number:**

E. Type of Construction: (This application is **not** for new construction.) ☐ Addition ☐ Conditioned Sunroom-Addition ☐ Renovation	**Stamp:**

F. Compliance Method:	**G. Who is Submitting this Application?** (**Application will be returned to person submitting unless otherwise stated.**)
☐ Performance Package ☐ NH Architect or Engineer Certification ☐ Rescheck Software ☐ Other ☐ Exempt (if exempt complete **box I**)	☐ Owner ☐ Designer ☐ Builder ☐ Other (explain) ☐ Architect

H. Additional Information:	**I. Structure is EXEMPT because:**
Total Floor Area (heated space) _____ ft^2 Heating System AFUE % _____% Basement heated? ☐ Yes ☐ No ☐ Full Basement ☐ Walk Out Basement ☐ Slab on grade ☐ Other_____ Highest Window U Value **0.**_____ Window Type ☐ Clear ☐ Low-e ☐ Low-e Argon Is a new heating system being installed? ☐ Yes ☐ No	☐ On a historic register ☐ Addition less than 150 ft^2 ☐ Contains no provision for fossil fuel heat. ☐ Low energy use (less than 1 watt/ ft^2)

Primary Fuel Type: ☐ Oil ☐ Gas ☐ Propane ☐ Electric ☐ Wood ☐ Other

Heating System Type ☐ Hot Water ☐ Hot Air ☐ Stove ☐ Resistance ☐ Heat Pump 9-23-04

Signature_____ Print Name_____ Date_____

J. Drawing of Structure (You may attach a plan in lieu of this page.) Include side view if sloped ceilings are planned. Note window and door locations & identify to correspond with window list.)

Scale: One square equals _____ feet

Use This form for Addition - Conditioned Sunroom - Renovation ONLY	ADDITION or RENOVATION TAKE OFF WORKSHEET	

U. Window Area Includes: windows, basement windows in conditioned basements, glazed doors and skylights

	Width (in inches)	X Height	X number=	R.O. Area	u-value	Model	Manufacturer
A		x	x =	in^2			
B		x	x =	in^2			
C		x	x =	in^2			
D		x	x =	in^2			
E		x	x =	in^2			
F		x	x =	in^2			
G		x	x =	in^2			
H		x	x =	in^2			
I		x	x =	in^2			
Total Inches^2 Glass (Glazing) =				in^2	÷ 144 =		**Ft^2 Enter this number in Box X page 6 Glazing Area**

V. Above Grade Walls Surrounding Heated Space

Add lengths of walls (including basement walls more than 50% above grade if floor (basement ceiling) is not insulated) in feet.

Floor	Front	Side 1	Back	Side 2	Total	Wall Height	Gross Wall Area
1st		+	+	+	=	x	=
2nd		+	+	+	=	x	=
other		+	+	+	=	x	=
						Total	Ft^2 (Enter this Number in Box W below)

Ceiling Area (Surface area to be insulated.)					
W.	Length X	Width =	Surface Area		
Flat	x				
Sloped	x			`Total Wall Area (from Box v above)	Total Wall + Ceiling area. Enter into page 6 box W
Total Ceiling Area =			+	=	

Use this form for Additions, Conditioned Sunrooms and Renovations Only	**Addition Performance Package Worksheet**	

X. YOUR PLANNED GLAZING PERCENTAGE	**Y. ENTER CHOSEN PERFORMANCE PACKAGE HERE** --→ _____ (select a package below)
100 x_____ / _____ = _____ **Glazing Area** (from **Box U**) **Gross Wall Area + Ceiling Area** (From **Box W**) **= Glazing Percentage**	

Z.	**PACKAGE REQUIREMENTS** Copy selected performance package requirements from below.		**YOUR PROPOSED STRUCTURE** Planned R or U Values	Brands / Models / insulation type and thickness
Window U Value (smaller U is better)				
Ceiling R Value				
Above Grade Wall R Value				
Floor R Value				
Door U-Value	**U .35**			
% AFUE Efficiency	If New Heating System **80%**			
Basement Wall				
Slab				

Choose an appropriate performance package from the chart below.

	Addition pkgs. Up to 40% Glass *			**Sunroom Addition Over 40% Glass****	**Renovation *****
Package ->	A-1	A-2	A-3	Sunroom Addition	Renovation
Window U Value (Maximum)	.35	.35	.35	.35	.35
Ceiling R Value	49	30	38	24	30
Above Grade Wall R	21	21	19	13	21
Floor R Value	21	30	30	21	21
Door U-Value Maximum	.35	.35	.35	.35	.35
Basement Wall	11	21	19	11	11
Slab	13	11	11	13	13

* For **Addition and Conditioned Sunroom Additions** Glazing Percentages refer to **Window Area / (Wall + Ceiling** Area) ***Renovations:** Enter efficiency values for those components which are altered as part of renovations.	****Conditioned Sunroom Additions** must meet the above specifications as well as the following criteria: a. Maximum of 500 Square feet floor area. b. Must maintain thermal isolation from the rest of the house. c. Must have a separate heating system or zone with the thermostat in the conditioned sunroom. d. May not be used for kitchen or sleeping room.

Directions for showing compliance with the New Hampshire Residential Energy Code
Additions - Sunroom Additions - Renovations

This Booklet contains the *Application for Certificate of Compliance* for the New Hampshire Energy Code for additions, sunroom additions and renovations to residential and small commercial structures. ***Please read these directions!*** If you need further help, please call us for assistance.

You must obtain Certification if you plan to:

- Build an addition to a structure greater than 150 square feet.
- Construct an addition to a commercial structure under 4000 square feet. (You may use commercial code instead.)
- Alter (Renovate) a structure.
- Winterize a seasonal home or part of an existing structure, such as finishing a room over a garage
- Construct an addition with more than 150 square feet of total floor space

You may be exempt, if you are:

- Renovating or adding to a certified historic building

In municipalities with a building code, deal directly with your building inspector. If your town has no building inspector, submit this completed application to the Public Utilities Commission.

Express Instructions - How to prepare this application

Addition	Complete page 1 Addition-Sunroom Addition – Renovation Data Page Boxes A- H Complete page 2 Drawing of Structure Box J or attach a plan. Complete page 3 take off work sheet Boxes U-W Complete page 4. Addition performance Package Worksheet Boxes X-Z
Sunroom addition	Complete page 1 Boxes A, B, C, D, E, G, H, and I Complete page 2 Box J Complete page 3 Boxes U, V, W Complete page 4 Boxes X,Y,Z
Renovation	Complete page 1 Boxes A, B, C, D, E, G, H, and I Complete page 4 Box Z*

* If you renovate a component of the structure which relates to the energy efficiency of that structure, you must bring the effected component(s) up to code. For example, if you are renovating one wall and, in the process, will replace sheet rock (open up a wall) and replace a window, you must insulate the wall to code and install a window which meets the code.

Exceptions : Installation of storm windows over existing windows and doors.
Glass only replacements in an existing window sash and frame.
Existing ceiling, wall or floor cavities exposed during construction, provided these cavities are filled with insulation.
Construction where the existing roof, wall or floor cavity is not exposed.

Directions for completing
ADDITION –SUNROOM ADDITION OR RENOVATION
Application for compliance with the
NH ENERY CODE

Page 1 Must be completed for all applications.

Box A **OWNER/OWNER BUILDER** All applicants must include this information
Box B **GENERAL CONTRACTOR** If a general contractor is involved with the project, complete this box.
Box C **PROPOSED STRUCTURE** Must be completed for all structures. The Map and Lot number must be included.
Box D **OFFICIAL USE ONLY** Skip this box.
Box E **TYPE OF CONSTRUCTION**

ADDITION Over 150 square feet in area. An addition may have a glazing percentage of up to 40% window to wall + ceiling area.

SUNROOM ADDITION: Means additions with a glazing percentage greater than 40%. Sunroom additions must meet the following criteria:

- Must be 'thermally isolated', which means there must be a door and insulated wall between conditioned sunroom and house.
- Must have separate zone or heating system and a thermostat to control that heating system within the conditioned sunroom addition
- May not be used as a sleeping room or kitchen.

RENOVATION: Means a change of any kind to an already built structure. This includes replacing, windows and making heated space from an attic, basement or over an attached garage. In a renovation if you touch a component covered by the energy code, you must bring it up to code. So for example if you replace a window, you must use a window that is up to code. In other words one that is less than or equal to a U Value.

Box F **COMPLIANCE METHOD** Enter how you are showing compliance with the energy code.
Performance Package To show compliance using this method, you only need to determine wall area, ceiling area and window Area. Once these are known, a ratio called a **glazing percentage** can be determined. You then choose a package consisting of insulation, window and heating values, based on your design. This option will work with most structures. Follow the instructions in the table below labeled 'How to prepare application.'
Rescheck Software This ***free, user friendly software*** can be downloaded by going to the Energy Codes page at the NHPUC Website. This software option allows for greater flexibility in design of the energy components. If you can't fit into a performance package, you may be able to get your structure to comply using **Rescheck**. When building an addition, the Rescheck software may be used in two different ways. You may enter just the envelope and heating components for the addition or you may include all the envelope and heating components for the whole building including the new addition. Either way if the software shows a passing figure, the addition complies with the code.
NH Architect or Engineer Certification If your structure has been designed by a NH architect or engineer, he or she has the responsibility of certifying your construction plans and submitting a letter to the PUC and the town stating that the structure meets the code requirements, and identifying the method used to determine that the structure complied. If this is the case, you do not need to submit an application.
Exempt If the structure is exempt, check and fill out box I

Box G **WHO IS SUBMITTING THIS APPLICATION** Check the appropriate box.

Box H **ADDITIONAL INFORMATION**
Total Floor Area (heated space): The total floor area for each floor of heated space.
Heating system AFUE %: This is a rating for heating equipment. This information is available from the manufacturer or is available through GAMA a third party rating organization.
Window U-Value: All windows must be NFRC rated, or you must use the default table. (If you use the default table, your windows will NOT pass the performance package method for complying.) Enter the Highest U-value for any planned window.
Window Type: Check box indicating if window is clear, low-e or low e-argon.
Heating fuel type: Check the box for each fuel type you will be using. Place the letter "P" next to your primary fuel source.
Heating System Type: Check the type(s) of heating system you will be using.

Box I **STRUCTURE IS EXEMPT** Complete this box ONLY if your structure is exempt. The following are valid reasons for exemptions:

On A Historic Register - If the structure you are adding to or renovating is on a historical register, you are exempt from the energy code.

Contains No Provision for Fossil Fuel Heat. - If you will have no provision for fossil fuel heat, including oil, gas, propane, LP, or electric heat (both central and space heat systems), then you are exempt from the code. Most exemptions of this type are granted for people with wood heat only, though solar exemptions have also been approved. Since geothermal heat pumps require electricity, they are not exempt from the energy code.

Mobile Home. - All mobile homes are regulated by federal standards and are therefore not required to be approved as meeting the NH Energy Code.

Greenhouses for Agricultural Use Only - A greenhouse which will be used exclusively for agricultural purposes is exempt from the code.

Additions Less than 150 Square Feet - This exemption is designed to allow mudrooms and breezeways to be exempt from the code.

Low Energy Usage - If you can show that you will use less than 1 watt per ft^2, you are exempt from the code. This is a VERY RARE exemption, as virtually all buildings use more energy than 1 watt per ft^2.

Signature - Please sign and date the application.

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Box J **DRAWING OF STRUCTURE** Please make a scale drawing of the structure. If there are only flat ceilings you need only show a floor plan. If there are sloped ceilings, please show an elevation showing those sloped ceilings. Please identify the locations of all doors and windows to correspond with window schedule on page 3.

Page 3

Box U **WINDOW AREA** In this box you will calculate the rough openings for all the windows in your structure. For each size window, enter and multiply the **Width x Height** (in inches) **x number of windows of that size**. Enter that number under **R.O Area** (Rough Opening). Then enter the NFRC rated U-Value of the window and the model and manufacturer. Do that for each size window, glass door and skylight. Add the Rough Openings for each size window to find the total rough opening.. Divide that number by 144 to find total rough openings of windows in square feet. **Enter the total rough opening(s) of all windows in square feet onto *Page 6 Box X GlazingArea*** You can look up the U-Value of any rated window at www.NFRC.org by clicking on product directory.

Box V **ABOVE GRADE WALLS SURROUNDING HEATED SPACE** With this box, you will calculate the area of all vertical walls separating heated from unheated space. Remember this includes both walls separating heated space from outside space as well as heated space from unheated attic space. If your basement is heated you will include as above grade walls the basement walls that are 50% or greater above grade. Enter the length, width and height of each above grade wall and multiply them out to find total wall area. If the wall is odd shaped, you may figure the area by dividing the wall into rectangles and triangular areas and adding them together. **Enter the total area of all above grade walls in square feet onto *Page 6 Box x gross wall area.***

Box W **AREA OF CEILINGS OVER HEATED SPACE** In this section you will find the area of flat ceilings and of sloped ceilings. Enter the length and width of each ceiling area and multiply Length x Width. You will calculate both the area of flat ceiling and the area of sloped ceiling. DO NOT add these two numbers together. **Enter the total area of all above grade walls in square feet onto *Page 6 Box x ceiling area.***

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BOX X **PLANNED GLAZING PERCENTAGE** In this section you will determine the glazing percentage of your structure. This is the percentage of walls and ceilings that will be glass. Enter the glazing area from Box U and the Gross Wall + Ceiling Area from Box W. Divide the Wall + Ceiling area into the window glazing area to find the glazing percentage. This percentage must be below 40% to use one of the addition packages.

BOX Y **CHOSEN PERFORMANCE PACKAGE** In this section you will choose a performance package from the chart at the bottom of page 4. If you are building an addition, choose package A-1, A-2 or A-3. If you are building a sunroom addition or renovating an existing building, choose the appropriate package. You must meet or beat all of the relevant requirements specified in the package that you choose.

BOX Z **PACKAGE REQUIREMENTS AND YOUR PROPOSED STRUCTURE** In this chart you will enter the package requirements from the package you chose in Box Y into the column marked Package Requirements. Under Your Proposed Structure, in the column marked Planned R or U Values, you will enter the efficiency for the component in question. For example if you chose package 15-2, you would enter .36 under theWindow U-value required by the package. Under the Planned R or U value column, you would enter the U-value of the window you plan to install. That U-value must be less than or equal to .36.

SUBMIT APPLICATION: Send application to the Public Utilities Commission, 21 S. Fruit St, Suite 10, Concord NH 03301-2429. Still have questions on the application or on the code? Call (603) 271-6306 or e-mail us at Energycodes@puc.nh.gov.

NH Energy Code Window and Door Default tables.

These tables should be used when you do not have an NFRC Rated door or window.

	Wood/Vinyl		Metal Clad Wood		Metal Without Thermal Break		Metal Without Thermal Break		Steel Doors		Wooden Doors		
Window Type	single	double	single	double	single	double	single	double	w/foam core	w/out foam core			
Operable	.89	.55	.90	.57	1.08	.65	1.27	.87	.35	.60	w/panel 1.75”	.54	.36
Fixed	.98	.56	.98	.56	1.07	.63	1.13	.69			Hollow	.46	.32
Skylights	1.47	.84	1.75	1.05	1.89	1.11	1.98	1.31			Solid core	.40	.26
											w/panel 1.125”	.39	.28

Notes

1. Glazing area for new construction is the ratio of glazing assemblies (including sliding glass doors, skylights and windows in conditioned basements but excluding solid doors) to the gross vertical wall area, expressed as a percentage.
2. Glazing U-Values must be documented by the National Fenestration Rating Council (NFRC) or taken from the default table above.
3. 3. Ceiling R-Values do not assume raised or oversized truss construction. If the insulation achieves its full thickness over the exterior walls or is continuous such as a roof deck or built-up roof, R-30 insulation may be substituted for R-38. Ceiling R-Values are the sum of cavity insulation and insulating sheathing (if used). Scuttles or pull-down stairs must be insulated to at least R-10 and may not exceed 15 square feet.
4. Wall R- Values are the sum of the cavity insulation and insulating sheathing (if used). Do not include exterior siding, structural sheathing or interior drywall. For example, an R-19 requirement could be met with R-19 cavity insulation or R-13 cavity insulation plus R-6 insulating sheathing. Include band joists between heated floors. Metal framed walls do not meet the requirements of prescriptive packages.
5. Floor requirements apply to floors over unconditioned space such as basements or crawlspaces. Floors over outside air must be insulated to at least R-30. If floors over unheated basements are insulated do not consider the basements walls, windows or doors for the purposes of this code. If basement or crawlspace walls are insulated, do not include floor areas.
6. Walls of basement below un-insulated floors must be insulated from the top of the rim joist to 10 feet below grade or to the bottom of the basement wall whichever is less. Basement walls less than 50% below grade must be considered above-grade walls and insulated accordingly. Basement windows under un-insulated floors must be included with other glazing and meet the same u-value requirements. Basement doors under un-insulated floors must have a maximum U-value of 0.35 except for 1 interior cellar access door, for example at top of cellar stairs. The walls of heated basements must be insulated to the required levels and the Floor (basement ceiling) ignored. A basement is considered heated only if provision is made to heat it with fossil or eclectically derived heat. The presence of a furnace, boiler or woodstove does not make a basement ‘heated’ under this code.
7. Crawlspace R-Values are for walls of unventilated crawlspaces. The insulation must extend from the top of the wall, (including sill plate) to at least 12 inches below grade.
8. Slab R-Values are for slabs without embedded heating pipes and require insulation to extend a total of 48 inches down from the top of the slab and under it;; a total of 48 inches down from the top of the slab and horizontally away from it covered with at least 10 inches of soil or pavement; or straight down 48” from the top of the slab. Add an additional R-2 for slabs having embedded heating pipes or un-insulated ducts.
   REMEMBER: Glazing areas and U-Values are maximum acceptable levels. Insulation R-Values are minimum acceptable levels. The R-values listed are those of the insulation only and do not include any structural elements. If `your planned design does not meet the provisions of any of the prescriptive packages, consider using the Rescheck software. Package available for download from the PUC at www.puc.nh.gov/energypg.html.

NEW HAMPSHIRE ENERGY CODE
Summary of Basic Requirements

Air Leakage	Joints, penetrations and all other similar openings in the building envelope that are sources of air leakage must be caulked, gasketed, weather-stripped or otherwise sealed. The maximum leakage rates for manufactured windows and doors are shown in the 'notes' section. Recessed lights must be type IC rated and installed with no penetrations or installed in appropriate air-tight assemblies with 0.5 in clearance from insulation.
Vapor Retarder	Vapor retarders must be installed on the warm-in-winter side of all non-vented framed ceilings, walls and floors. In floors, exterior rated sheathing qualifies as a vapor retarder. This requirement does not apply where moisture or its freezing will not damage building materials.
Materials and Insulation Information	Materials and equipment must be identified so that compliance can be determined. Manufacturer manuals for all installed heating, cooling and service water heating equipment must be provided. Insulation R-values, glazing and door U-values and heating and cooling equipment efficiency must be clearly marked on the building plans, drawings, specifications or Area Calculation Worksheet.
Duct Insulation	Supply and return ducts for heating and cooling systems located in unconditioned spaces must be insulated to at least R-5 Exceptions: Insulation is not required for exhaust air ducts, ducts within HVAC equipment or when the design temperature difference between the air in the duct and the surrounding air is 15° F or less.
Duct Construction	Ducts must be sealed using mastic with fibrous backing tape. For fibrous ducts pressure-sensitive tape may be used. Other sealants may be approved by the building official. Duct tape is not permitted. The HVAC system must provide a means for balancing air and water systems.
Temperature Controls	Where used to control comfort heating, thermostatic controls shall be capable of being set locally or remotely by adjustment or selection of sensors down to 55° F (13°C) or lower. Where used to control comfort cooling, thermostatic controls shall be capable if being set locally or remotely by adjustment or selection of sensors up to 85° (29°C) or higher. Where used to control both comfort heating and cooling, thermostatic controls shall be capable of providing a temperature range or deadband of at least 5° F (Δ3°C) within which the supply of heating and cooling energy is shut off or reduced to a minimum.
HVAC Piping Insulation	HVAC piping in unconditioned spaces conveying fluids at temperatures above 120°F or chilled fluids at less than 55°F must be insulated to R-4
Heated Swimming Pools	All heated swimming pools must have an on/off pool heater switch. Heated pools require a pool cover unless more than 20% of the heating energy is from renewable sources. Any swimming pool pump must be equipped with a time clock.
Circulating and Non-Circulating Hot Water Systems	Circulating hot water systems must have automatic or manual controls and must be insulated. ALL DOMESTIC HOT WATER SYSTEMS flowing through unconditioned space shall be insulated to a minimum of R-3.
Electric System	Each multifamily dwelling unit must be equipped with a separate electric meter.